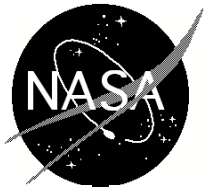
National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland
20771



Laboratory Chief's Summary

Dear Reader:

Welcome to the Laboratory for Atmospheres' 2005 Technical Highlights report. I thank you for your interest. We publish this report each year to describe our research and to summarize our accomplishments.

This document is intended for a broad audience. Our readers include colleagues within NASA, scientists outside the Agency, science graduate students, and members of the general public. Inside are descriptions of our organization and facilities, our major activities and science highlights, and our education and outreach accomplishments for calendar year 2005.

The Laboratory's approximately 230 scientists, technologists, and administrative personnel are part of the Earth–Sun Exploration Division in the Sciences and Exploration Directorate of the NASA Goddard Space Flight Center. The Laboratory for Atmospheres is continuing our mission of advancing knowledge and understanding of the Earth's atmosphere.

Laboratory scientists continued having a productive year organizing and participating in international field campaigns, developing and refining instruments, analyzing data, expanding data sets, and improving models. The Aura spacecraft, launched in July 2004, is an important component of the Lab's science activities through validation campaigns and data analysis and modeling. Aura has joined the complement of EOS satellites that is helping us better understand our home planet's environment, and is increasing our knowledge of the complex chemistry of the atmosphere.

We continued the very successful Distinguished Lecturer Seminar Series, which focused on precipitation, clouds, aerosols, and their physical/chemical linkages; details of the series can be found on our Web site.

As in previous years, Laboratory scientists garnered many top professional honors. The NASA Exceptional Achievement Medal was awarded to two lab members: Dr. Mian Chin for her development of the Goddard Chemistry Aerosol Radiation and Transport (GOCART) model, and Dr. Yogesh Sud for his advances on land-surface parameterization and biospheric-atmospheric processes. Fritz Hasler, now retired from the Mesoscale Atmospheric Processes Branch, was awarded the Barry M. Goldwater award by the AIAA National Capitol Section for his education and outreach activities with the Electronic Theater (E-Theater). The IEEE elevated Chuck Cote to the grade of Senior Member, their highest professional grade. The Department of Energy (DOE) announced the selection of Dr. Warren Wiscombe as Chief Scientist for DOE's Atmospheric Radiation Measurement (ARM) program. In addition, there were several Group Achievement Awards. These were awarded to the Aura Education Outreach Team, the Aura Project Science Team, the SAGE Ozone Loss Validation Experiment (SOLVE)-II DC-8 Science Team, and the MODIS Aerosol Algorithm Team. A list of award winners is given in this report. I congratulate them for their outstanding achievements.

The year 2005 was also a time to bid farewell to several valuable members of the Laboratory. Dean Duffy, Fritz Hasler, Ernie Hilsenrath, Walt Hoegy, Larry Korb, Nathan Miller, Cuddapah Prabhakara, and Peter Wetzel retired. Marshall Shepherd left the Laboratory to become a professor at the University of Georgia and Bob Atlas is now with NOAA as director of The Atlantic Oceanographic and Meteorological Laboratory (AOML) in Miami.

I am pleased to greet new civil servants in the Laboratory, Peter Colarco, Christina Hsu, Ken Pickering, and Eric Wilcox.

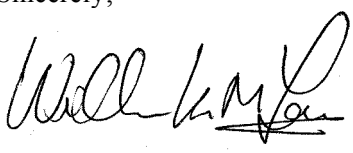
Several noteworthy events took place during 2005. Two components of the Aura Validation Experiment (AVE) were successfully completed. The Polar AVE (PAVE) experiment was completed successfully from Pease Tradeport, New Hampshire on January 24, 2005. The experiment utilized the NASA DC-8, out of Dryden Flight Research Center. AVE Houston took place in June of 2005 from Ellington Field in Houston, Texas. The NASA WB-57 completed 8 successful science flights over the course of 14 days.

Several Laboratory scientists were selected as investigators under the Instrument Incubator Program: Bruce Gentry (613.1), "Tropospheric Wind Lidar Technology Experiment" (TWiLiTE); Gerald Heymsfield (613.1), "High-Altitude Imaging Wind and Rain Airborne Profiler" (HIWRAP); David Whiteman (613.1), "Airborne Water, Aerosol, Cloud, and Carbon Dioxide Lidar"; Omar Torres (613.3/SSAI) Co-Investigator on "A High-Accuracy Spectropolarimetric Camera for Aerosol Remote Sensing from Space"; Warren Wiscombe (613.2), Collaborator with Langley Research Center (LaRC) investigators on "In-Situ Net Flux Within the Atmosphere of the Earth."

The Tropical Rainfall Measuring Mission (TRMM) was extended beyond its June 15 termination date. TRMM is expected to last until at least 2010, when the first of a series of planned follow-on Global Precipitation Measurement Mission (GPM) satellites is due to launch. The Upper Atmosphere Research Satellite (UARS) was retired from service on December 14 after making measurements of the upper atmosphere for more than 14 years. Scott Braun (613.1) was appointed Deputy Project Scientist for TRMM, and Joanne Joiner (613.3) was appointed Deputy Project Scientist for Aura.

This report is being published in two media: a printed version, and an electronic version on our Laboratory for Atmospheres Web site, http://atmospheres.gsfc.nasa.gov. Check out our Web site. It continues to be redesigned to be more useful for our scientists, colleagues, and the public. We welcome comments on this 2005 report and on the material displayed on our Web site; your comments may be submitted via the Web site.

Sincerely,



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